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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,015	03/10/2004	Arnold J.J. Reuser	24414YA	4251

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EXAMINER	
BERTOGLIO, VALARIE E	

ART UNIT	PAPER NUMBER
1632	

DATE MAILED: 02/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/796,015	REUSER ET AL.	
	Examiner	Art Unit	
	Valarie Bertoglio	1632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10,15 and 16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,15 and 16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The preliminary amendment dated 03/10/2004 has been received. Claims 11-14 and 17-61 are cancelled. Claims 1-10,15 and 16 are pending and under consideration in the instant office action.

Priority

Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 120 as follows:

This application is claiming the benefit of a prior filed nonprovisional application under 35 U.S.C. 120, 121, or 365(c). Copendency between the current application and the prior application is required.

The instant application claims priority to USSN 10/046180, which was abandoned on 08/01/2003. The instant application has an actual filing date of 03/10/2004, which is after the date of abandonment for 10/046180. Furthermore, USSN 10/046180, filed as a reissue, was never established as a complete application and did not issue.

The instant application also claims priority as a divisional of 10/014,511, filed 12/14/2001 and abandoned 03/12/2004 and which is a continuation of 09/770,496, filed 01/29/2001 and abandoned 01/08/2004. 09/770,496 claims priority as a non-provisional of provisional applications 60/001,796, filed 08/02/1995, and 60/111,291, filed 12/07/1998. However, the priority claim to the provisional applications is not granted under 35 USC 119(e) because the provisional applications, '796 and '291, expired prior to filing of the '496 application. Therefore, the effective priority date of the instant application is 01/29/2001.

Specification

The disclosure is objected to because of the following informalities: The pages are numbered with two different page numbers.

Appropriate correction is required.

Claim Objections

Claim 10 is objected to because of the following informalities: Claim 10 has multiple sentences. The second sentence of the claim appears to be the text of original claim 11, which was cancelled by the preliminary amendment filed with the application. Claim 10 will be examined as though it reads only on the first sentence, as the text in the second sentence appears to be a typographical error.

Appropriate correction is required.

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 1-10, 15 and 16 are rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-10, 15 and 16 of prior U.S. Patent No. 6,118,045. Claims 1-10,15 and 16 of

the instant application and of US 6,118,045 appear to be identical. This is a double patenting rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
>
> (f) he did not himself invent the subject matter sought to be patented.

The instant application is denied priority to 10/046180, filed as a Reissue patent application on 01/16/2002 and abandoned on 08/01/2003, prior to the filing of the instant application. The effective filing date of the instant application is 01/29/2001 (see above) as a divisional of 10/014511 (filed 12/14/2001) which is a continuation of 09/770496 (filed 01/29/2001). Therefore, the instant claims are subject to art not available against the same claimed subjected matter issued as USPN 6,118,045.

1) Claims 1-10, 15 and 16 are rejected under 35 U.S.C. 102(a) as being anticipated by Reuser et al. (USPN 6,118,045, issued 09/12/2000).

Reuser et al. taught transgenic mice comprising a transgene comprising the α-S1-casein promoter and enhancer operably linked to the human acid α-glucosidase gene and a secretory DNA segment from the acid α-glucosidase gene (col. 6, line 64-col. 7, line 17; col. 12, line 50-col. 13, line 37) wherein the transgene is expressed in an adult female or a female descendent thereof, such that acid α-glucosidase is processed and secreted by the mammary secretory cells into the milk of the animal (column 15, lines 52-59) as encompassed by claims 1,3 and 5-9. The milk was isolated from the transgenic mice and the acid α-glucosidase was recovered and tested for catalytic activity (column 15, lines 51-67) as encompassed by claims 10 and 15. The estimated specific activity of the acid α-glucosidase in the milk was as much as 11.3mg/L when an acid α-glucosidase cDNA was used in the transgene and as much as 3.3g/L when a genomic acid α-glucosidase DNA was used in the transgene (col. 16, lines 1-4) as encompassed by claims 2 and 16. Reuser taught acid α-glucosidase is taken up by a mannose-6-phosphaste receptor present on muscle cells (col. 2, lines 9-21). Accordingly, Reuser taught all of the limitations of the claims.

2) Claims 1-8 and 10, 15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Bijvoet et al., [1998, **Human Molecular Genetics**, 7:1815-1824].

Bijvoet et al. (1998) taught a transgenic mouse whose genome comprises a transgene encoding human acid α-glucosidase operably linked to the bovine α_{S1}-casein promoter and a signal sequence for secretion (see page 1816, col. 2, paragraph 2; Figure 1 and page 1822, paragraph bridging columns). Acid α-glucosidase was secreted into the milk of the mouse in a recoverable amount up to 2 mg/ml (page 1818, col. 1, paragraph 1) and was demonstrated to

have catalytic activity (page 1818, col. 2, paragraph 3). The construct used by Bijvoet included all exons and introns of the acid α-glucosidase gene, which would include the natural acid α-glucosidase signal sequence (page 1816, col. 2, paragraph 2). Bijovoet (1998) also taught a transgenic mouse comprising a transgene comprising Bijvoet acid α-glucosidase cDNA as required by claim 7 (page 1816, col. 1, paragraph 2). Bijvoet et al. (1998) demonstrated that the recombinant protein produced can be taken up by muscle cells (page 1819, col. 2). Bijvoet taught use of genomic DNA encoding acid α-glucosidase in making a mouse that secretes recoverable amounts of the recombinant protein.

Therefore, Bijvoet et al. (1998) taught all of the limitations of the claims.

3) Claims 1-3,5-8,10,15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Bijvoet et al., [1996, **Biochimica et Biophysica Acta**, 1308:93-96].

Bijvoet et al. (1996) taught a transgenic mouse whose genome comprises a transgene encoding human acid α-glucosidase to the bovine α_{S1}-casein promoter and a signal sequence for secretion (see page 94, col. 1, paragraph 2; Figure 1). Bijvoet taught use of cDNA encoding acid α-glucosidase (page 94, col. 1, paragraph 2) as well as the use of genomic DNA (page 95, col. 2 paragraph 3). Acid α-glucosidase was secreted into the milk of the mouse in a recoverable amount up to 1.5 μg/ml for cDNA (page 1818, col. 1, paragraph 1) and more than 100 times that amount (at least 150 μg/ml) when a genomic construct was used (page 95, col. 2, paragraph 3) and was demonstrated to have catalytic activity (page 95, col. 2, paragraph 2 Table 2). The acid α-glucosidase cDNA construct used by Bijvoet included all exonic acid α-glucosidase sequences, which would include signal sequences.

Therefore, Bijvoet et al. (1996) taught all of the limitations of the claims.

4) Claims 1-10, 15 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Reuser et al. (USPN 6,118,045).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

The subject matter of claims 1-10, 15 and 16 are taught by Reuser et al. (USPN 6,118,045) as set forth above in the rejection under 35 USC 102(a). Accordingly, Reuser teaches all of the limitations of the claims.

5) Claims 1-10,15 and 16 are rejected under 35 U.S.C. 102(f) because the applicant did not invent the claimed subject matter.

The subject matter of claims 1-10, 15 and 16 are taught by Reuser et al. (USPN 6,118,045) as set forth above in the rejection under 35 USC 102(a). Accordingly, Reuser teaches all of the limitations of the claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1) Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bijvoet (1998) as applied to claims 1-8 and 10, 15 and 16 above, and further in view of Archibald (WO 90/05188).

As set forth above, Bijvoet et al (1998) taught producing acid α-glucosidase in the milk of transgenic mice using an acid α -glucosidase transgene derived from genomic sequence as well as a cDNA encoding acid α -glucosidase.

Bijvoet (1998) did not teach use of a genomic-cDNA hybrid wherein some but not all intronic regions were used in the construction of the cDNA.

However, Archibald taught that use of introns can increase transcription efficiency of transgenes in transgenic mice (page 3, lines 14-29); however, use of cDNA sequences are beneficial because they are smaller and easier to manipulate (page 3, lines 7-12; page 4, lines 3-34). Archibald taught that high yields can be obtained from smaller constructs by using some, but not all, introns (page 5, lines 30-32).

It would have been obvious to combine the teachings of Bijvoet et al (1998) with those of Archibald to make a smaller acid α-glucosidase transgene comprising some, but not all intronic DNA. One would have been motivated to use a genomic-cDNA hybrid in the making the mice of Bijvoet et al. (1998) because Bijvoet taught that use of a transgene comprising acid α-glucosidase cDNA sequence results in a much lower yield than use of genomic sequence in the transgene (page 1816, col. 1, paragraphs 2-3), however, use of the full genomic sequence results

in a very large construct that had to be manipulated to remove certain restriction sites (paragraph bridging columns 1-2 at page 1822).

One would have a reasonable expectation of success in combining the teachings of Bijvoet with those of Archibald because all of the molecular techniques to make the hybrids were well-established and because success, all be it low, had been met using a construct comprising only acid α-glucosidase cDNA while great success had been obtained using a construct comprising only acid α-glucosidase genomic DNA.

Therefore, the claimed invention would have been prima facia obvious to one of ordinary skill in the art at the time of the invention.

2) Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bijvoet (1996) as applied to claims 1-3,5-8,10,15 and 16 above, and further in view of Archibald (WO 90/05188).

As set forth above, Bijvoet et al (1996) taught producing acid α-glucosidase in the milk of transgenic mice using an acid α -glucosidase transgene derived from either the genomic acid α -glucosidase sequence or from the corresponding cDNA.

Bijvoet (1996) did not teach use of a genomic-cDNA hybrid wherein some but not all intronic regions were used in the construction of the cDNA.

However, Archibald taught that use of introns can increase transcription efficiency of transgenes in transgenic mice (page 3, lines 14-29), however, use of cDNA sequences are beneficial because they are smaller and easier to manipulate (page 3, lines 7-12; page 4, lines 3-34). Archibald taught that high yields can be obtained from smaller constructs by using some, but not all, introns (page 5, lines 30-32).

It would have been obvious to combine the teachings of Bijvoet et al (1996) with those of Archibald to make an acid α-glucosidase transgene comprising some, but not all intronic DNA. One would have been motivated to use a genomic-cDNA hybrid in the making the mice of Bijvoet et al. (1996) because Bijvoet taught that use of cDNA only results in a much lower yield (page 95, col. 2, paragraph 3)in comparison to use of the full genomic sequence, which would result in a much larger results construct that would be more difficult to manipulate (see Archibald).

One would have a reasonable expectation of success in combining the teachings of Bijvoet with those of Archibald because all of the molecular techniques to make the hybrids were well-established and because success, all be it low, had been met using a construct comprising only acid α-glucosidase cDNA while much greater success had been obtained using a construct comprising acid α-glucosidase genomic DNA.

Therefore, the claimed invention would have been prima facia obvious to one of ordinary skill in the art at the time of the invention.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Deboer et al (WO 93/25567) in view of Martiniuk et al. (DNA and Cell Biology, 1992, 11(9), 701-706) are relevant to the instant invention because they provide the teachings and motivation to carry out the claimed invention. However, in light of the teachings in the specification with respect to the unpredictability that recombinant human acid α-glucosidase would undergo proper post-translation processing and secretion from mammary cells (page 4, lines 10-20), it was unexpected that the combination of these references would result in the production and secretion of a functional acid α-glucosidase into the milk of the transgenic mammal as claimed.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Valarie Bertoglio whose telephone number is (571) 272-0725. The examiner can normally be reached on Mon-Thurs 5:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Valarie Bertoglio
Examiner
Art Unit 1632